

DECLARATION, POWER OF ATTORNEY AND PETITION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **"WAVELENGTH DIVISION MULTIPLEXING AND DE-MULTIPLEXING SYSTEM"** the specification of which

☒ is attached hereto
☐ was filed on **** as Application Serial No. ****
 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) or U.S. provisional application(s) for patent or inventor's certificate listed below and have also identified below any foreign application or U.S. provisional application(s) for patent or inventor's certificate having a filing date before that of the application of which priority is claimed.

Prior Foreign/U.S. Provisional Application(s)

			Priority Claimed	
(Number)	(Country)	(Day, month, year filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
____	____	____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>09/953,468</u>	<u>September 14, 2001</u>	<u>Pending</u>
(Application Serial No.)	Filing Date	(Status: Patented, pending, abandoned)
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(Application Serial No.)	Filing Date	(Status: Patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint G.P. SMITH, REG. 20,142; A.C. ROSE, REG. 17,047; L.J. BOVASSO, REG. 24,075; C. BERMAN, REG. 29,249; C. DARROW, REG. 30,166; M.E. HARRIS, REG. 26,690; K.A. MACLEAN, REG. 31,118; C. ROSENBERG, REG. 31,464; M.E. BROWN, REG. 28,590; S.R. HANSEN, REG. 38,486; D.N. LARSON, REG. 29,401; J.W. INSKEEP, REG. 33,910; H.D. JASTRAM, REG. 19,777; B. CANTER, REG. 34,792; C.J. LERVICK, REG. 35,244; L. CULLMAN, REG.

39,645; C.A.S. HAMRICK, REG. 22,586; R.O. GUILLOT, REG. 28,852; J. BOYCE, REG. 40,920; C. CHOU, REG. 41,672; A.B. DIEPENBROCK III, REG. 39,960; M.K. BOSWORTH, REG. 28,186; L. SHERRY, REG. 43,918; L. McROSS, REG. 40,427; T. KHAN, REG. 46,273; L. GUERNSEY REG. 40,008; M. HUGHES, REG. 29,077; R. ROBERTS, REG. 38,597; S. HOWELL, REG. 45,929; R. NADER, 47,262; B. COLEMAN, REG. 39,145; P. HICKMAN, REG. 28,516; M. HUGHES, REG. 29,077; J. KUDLA, REG. 47, 724; D. BURTON, REG. 45,323; S. KELLEY, REG. 43,449; OPPENHEIMER WOLFF & DONNELLY LLP, 1400 Page Mill Road, Palo Alto, California 94304, (650) 320-4000, as my attorneys with full power of substitution and revocation, to prosecute said application and to transact in connection therewith all business in the Patent and Trademark Office and before competent International Authorities.

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Wherefore I pray that Letters Patent be granted to me for the invention or discovery described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, declaration, power of attorney, and this petition.

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Inventor's Signature: 

Date: 11/8/2001

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Inventor's Signature: 

Date: 11/08/01

WAVELENGTH DIVISION MULTIPLEXING AND DE-MULTIPLEXING SYSTEM

Inventors: TSAI, John C.; and WANG, David W.

Atty. ref.: 60617.300901

THIS CORRESPONDENCE CHART IS FOR EASE OF UNDERSTANDING AND INFORMATIONAL PURPOSES ONLY, AND DOES NOT FORM A PART OF THE FORMAL PATENT APPLICATION.

1	fiber Bragg grating	240	light beam
2	grating region	242	strayed portions
3	interlayer	244	interface
4	laser beam	246	interface
5	reflected beam	248	reflected portion
6	passed beam	250	passed portion
100	Bragg grating	302	substrate
102	laser beam	304	grating region
104	substrate	306	mask
106	reflective layer	308	grating pattern
108	grating region	310	interlayer array
110	interlayer		
112	first transmissive material	400	process
114	second transmissive material	402-412	step
116	over-fill layer	422-462	sub-step
118	reflected beam		
120	passed beam	500	linear grating
202	substrate	502	background material
204	photoresist layer	504	interlayer material
204a	unexposed region	506	thickness
204b	exposed region	508	separation
206	photomask	510	light beam
208	pre-designated pattern	512	reflected beam
212	light	514	passed beam
214	transmissive layer	600	planar grating
216	air gap	602	background
218	photoresist layer	604	cells
218a	unexposed region	606	XYZ-axes icon
218b	exposed regions	608	thickness
220	photomask	610	separation
222	grating pattern	612	thickness
224	light	614	separation
226	grating region	616	light beam
228	over-fill layer	618	diffracted beam
230	interlayer array	620	passed beam
232	transmissive layer		

100 102 104 106 108 110 112 114 116 118 120 202 204 204a 204b 206 208 212 214 216 218 218a 218b 220 222 224 226 228 230 232

700 cubical grating
 702 background
 704 cells
 706 XYZ-axes icon
 708 light beam
 710 first diffracted beam
 712 second diffracted beam
 714 passed beam

 800 generic grating
 802 background
 804 cell
 806 thickness
 808 light beam
 810 first surface
 812 first reflected portion
 814 first refracted portion
 816 second surface
 818 second reflected portion
 820 transmitted portion
 822 second refracted portion
 826 vertical separation
 828 horizontal separation
 830 vertical separation

 850 grating
 852 background
 854 cells
 856 horizontal thickness
 858 vertical thickness
 860 horizontal separation
 862 first vertical separation
 864 second vertical separation
 866 first portions
 868 first portions
 868 second portions

 880 grating
 882 cells
 884 first portions
 886 second portions
 888 third portions

 1000 multiplexing system
 1002 light sources
 1004 light beam

1006 WDM device
 1008 light beam
 1010 light target

 1100 de-multiplexing system
 1102 light source
 1104 light beam
 1106 WDM device
 1108 light beams
 1110 light targets

 1200 multiplexing device
 1202 first planar grating
 1204 second planar grating
 1206 third planar grating
 1208 first input beam
 1210 second input beam
 1212 third input beam
 1214 fourth input beam
 1216 first output beam
 1218 second output beam
 1220 third output beam

 1300 multiplexing device
 1302 first cubical grating
 1304 second cubical grating
 1306 third cubical grating
 1308 first input beam
 1310 second input beam
 1312 third input beam
 1314 fourth input beam
 1316 fifth input beam
 1318 sixth input beam
 1320 seventh input beam
 1322 first output beam
 1324 second output beam
 1326 third output beam

 1400 de-multiplexing device
 1402 first planar grating
 1404 second planar grating
 1406 third planar grating
 1408 input beam
 1410 first diffracted beam
 1412 first intermediate beam
 1414 second diffracted beam

1416 second intermediate beam
1418 third diffracted beam
1420 output beam

1500 de-multiplexing device
1502 first cubical grating
1504 second cubical grating
1506 third cubical grating
1508 input beam
1510 first diffracted beam
1512 second diffracted beam
1514 first intermediate beam
1516 third diffracted beam
1518 fourth diffracted beam
1520 second intermediate beam
1522 fifth diffracted beam
1524 sixth diffracted beam
1526 output beam

1600 de-interleaver
1602 center drating block

1602 center grating block
1604 first grating block
1606 second grating block
1608a-f cubical gratings
1610a-f gratings
1612a-f gratings
1614 input beam
1616 input source
1618 first output beam
1620 first output target
1622 second output beam
1624 second output target

1700 interleaver
1702 first input beam
1704 second input beam
1706 first input source
1708 second input source
1710 output beam
1712 output target

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